Applicant: Seppo Nissilä
Application Serial No.: 10/735,255
Filing Date: December 12, 2003
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REMARKS

The non-final Office Action mailed January 11, 2005 has been carefully considered. Claims 1and 10 have been amended in a sincere effort to further clarify that which Applicant regards as the invention.

Support for this Amendment is found generally within the specification, claims, and drawings, as originally filed. Specifically, support for the amendments to Claims 1 and 10 is provided at page 3, paragraphs 14 and 15; page 7, paragraph 26; page 9, paragraph 30; and page 10, paragraph 33 of the specification, as well as being shown in Figures 1-4 and 6.

The Applicant would like to thank the Examiner for conducting a telephonic interview with the undersigned on March 17, 2005. During the interview, the concept of packing heart beat interval information to generate packed data that is shorter in duration when played back than the actual time required for measuring the heart beat interval information was further clarified. A specific example of packing by averaging the heart beat interval information was also discussed.

Claims 1-21 were rejected under 35 U.S.C. §112 as not complying with the enablement requirement. The Office Action indicates that the specification does not provide an adequate description of packing the measured heart beat interval information such that the duration of the sound collage is shorter than the time spent for measuring the heart beat interval information.

Specific Language of Claims 1 and 10

However, Claim 1, as originally filed, required

(1) "packing the measured heart beat interval information"; and

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(2) "coding the packed heart beat interval information into a format that is presentable after the exercise as a sound collage such that ... the duration of the sound collage is shorter than the time spent for measuring the heart beat intervals".

Similarly, Claim 10, as originally filed, required

(3) "means for packing the measured heart beat interval information"; and

(4) "means for coding the packed heart beat interval information ... into a sound collage that is shorter in duration than the measurement time".

Definition of Packed Data

Regarding (1) and (3) above, it is respectfully submitted that the term "packed data" is defined as and readily understood in the art to mean "information that has been <u>compressed</u> to make optimal use of memory" (emphasis added). R. Graf, *Modern Dictionary of Electronics*, 6th Edition, p. 705 (1984. Similarly, the term "pack" is understood in the art to mean "<u>compressing</u> several items of data in a storage medium in such a way that the individual items can later be recovered" (emphasis added). F. Jay, *IEEE Standard Dictionary of Electrical and Electronics Terms*, p. 616 (1984).

Thus, the mere step of or means for packing the measured heart beat interval information, as originally defined by Claims 1 and 10, respectively, function to <u>compress</u> the heart beat interval information into a block of memory having a shorter duration, when read or played back, than that of the original, unpacked heart beat interval information. This concept is clearly disclosed in paragraph 33 of the specification, which states that "... the heart beat interval information is <u>compressed</u> such that the packed data is <u>shorter</u> in duration than the actual measuring time. The packing ratio can be tenfold or hundredfold, for instance" (emphasis added).

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Disclosure of Coding the Packed Information into a Sound Collage

Regarding (2) and (4) above, various embodiments of the step of or means for coding the packed information into a sound collage (such as by altering rhythm, tempo, and/or quantity of instruments in accordance with the packed heart beat interval information) are disclosed throughout the specification, including at page 1 paragraph 4 through page 3, paragraph 15; page 4, paragraph 18 through page 6, paragraph 24; and page 9, paragraph 31 through page 10, paragraph 33. Since, as established above, the duration of the packed heart beat interval information is shorter than the time spent for measuring the heart beat interval information, it is obvious that coding this same packed data (that is shorter than the time spent for measuring the heart beat intervals) into a sound collage (using the methods disclosed throughout the specification) would readily result in a sound collage that is also shorter than the time spent for measuring the heart beat intervals without further reduction.

It is respectfully submitted that since numerous methods of data packing or compression are well known in the art, the description provided in the specification as filed, that is "... the heart beat interval information is packed before producing the music" (paragraph 14) and "...the heart rate monitor comprises means 672 for packing heart beat interval information ... In packing the heart beat interval information is compressed such that the packed data is shorter in duration than the actual measuring time" (paragraph 33), is more than sufficient to enable one skilled in the art to pack the measured heart beat interval information, as defined by Claims 1 and 10.

Averaging as an Example of Packing

The disclosure proceeds even further to provide an example of how the heart beat interval information could be packed or compressed. For instance, as noted by the Examiner, averaging was disclosed as a method for packing the heart beat interval information at paragraphs 14 and 33, that is, "[packing] could be implemented by averaging, for instance,

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whereby the heart beat interval data of a given time interval is represented by the mean heart rate of said time" (paragraph 14) and "packing can be performed by averaging the heart beat interval information, for instance. In packing the heart beat interval information is compressed such that the packed data is shorter in duration than the actual measuring time. The packing ratio can be tenfold or hundredfold, for instance" (paragraph 33).

However, the Office Action indicates that the description does not explain (a) how such averaging results in a shorter duration of the packed data or (b) how the duration of the packed data is reduced. The answer to (b) is that the duration of the packed data is not reduced, but rather, by definition, the duration of packed data (of any type) is itself shorter than the data in its unpacked form (in this case, the time spent for measuring the heart beat interval information).

Regarding the answer to (a), obviously, if the mean or average of, for example, four numbers is calculated, then rather than requiring four memory locations to store the original unpacked data (four numbers), only one memory location is required to store the packed data (the average of the four numbers). It is respectfully submitted that this is a painfully simplistic concept (for which references may be provided upon request) that should readily be understood by anyone, whether skilled in the art or not, given only the disclosure provided in the specification.

As a specific example applied to heart beat interval information, assume 60 minutes of heart beat information with samples being taken every 6 seconds. This results in 600 total samples. Assume an average is taken of every 10 samples for a 10:1 compression ratio. Then only 1/10 of 600 or 60 samples (averages) would need to be stored, rather than the original, unpacked 600 samples. Playback of these 60 (average) samples at the original rate (every 6 seconds) would take only 1/10 of the 60 minutes required to actually measure the heart rate interval information, or 6 minutes.

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Amendments to Claims 1 and 10

Further, Claims 1 and 10 have been amended to further clarify that there is no required dependence between "coding the packed heart rate interval information" and "the duration of the sound collage being shorter than the time spent for measuring the heart beat intervals". Therefore, it is respectfully requested that the rejection of Claims 1-21 under 35 U.S.C. §112, first paragraph, be reconsidered and withdrawn.

In view of the foregoing amendments and remarks, entry of the amendments to Claims 1 and 10; favorable consideration of Claims 1 and 10, as amended; favorable reconsideration of Claims 2-9 and 11-21; and allowance of pending Claims 1-21 are respectfully and earnestly solicited.

Respectfully submitted,
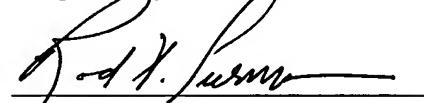
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